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Recombination fluorescence in ultracold plasmas SCOTT BERGESON, Brigham Young University, FRANCIS ROBICHEAUX, Auburn University — The expansion dynamics of ultracold neutral plasmas are determined by electron physics. Three-body recombination and electron-Rydberg scattering heat the plasma electrons at early times and drive the expansion. The details of these processes are well understood in weakly-coupled plasmas. However, these processes may proceed differently in strongly-coupled neutral systems. We present a study of recombination fluorescence in ultracold plasmas. At low densities, we find good agreement between theory and experiment. At higher densities, theory and experiment diverge.

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